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<110> Mahajan, Pramod B.

<120> Rice MLH1 Ortholog and Uses Thereof

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<151> 2000-09-18

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atg gac gag cct tcg ccg cgc gga ggt ggg tgc gcc ggg gag ccg ccc   168
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cgc atc cgg agg ttg gag gag tcg gtg gtg aac cgc atc gcg gcg ggg   216
Arg Ile Arg Arg Leu Glu Glu Ser Val Val Asn Arg Ile Ala Ala Gly
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gag gtg atc cag cgg ccg tcg tcg gcg gtg aag gag ctc atc gag aac   264
Glu Val Ile Gln Arg Pro Ser Ser Ala Val Lys Glu Leu Ile Glu Asn
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agc ctc gac gct ggc gcc tcc agc gtc tcc gtt gcg gtg aag gac ggt   312
Ser Leu Asp Ala Gly Ala Ser Ser Val Ser Val Ala Val Lys Asp Gly
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ggc ctc aag ctc atc cag gtc tcc gat gac ggc cat ggc atc agg ttt   360
Gly Leu Lys Leu Ile Gln Val Ser Asp Asp Gly His Gly Ile Arg Phe
 65   70   75   80

gag gat ttg gca ata ttg tgc gaa agg cat act acc tca aag tta tct   408
Glu Asp Leu Ala Ile Leu Cys Glu Arg His Thr Thr Ser Lys Leu Ser
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gca tac gag gat ctg cag acc ata aaa tcg atg ggg ttc aga ggg gag   456
Ala Tyr Glu Asp Leu Gln Thr Ile Lys Ser Met Gly Phe Arg Gly Glu
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aca gaa ggc caa ttg cac ggc tac agg gtt tct tac aga gat ggt gta          552
Thr Glu Gly Gln Leu His Gly Tyr Arg Val Ser Tyr Arg Asp Gly Val
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atg gag aat gag cct aag cct tgc gct gcg gtg aaa gga act caa gtc          600
Met Glu Asn Glu Pro Lys Pro Cys Ala Ala Val Lys Gly Thr Gln Val
145                 150                 155                 160

atg gtt gaa aat cta ttt tac aac atg gta gcc cgc aag aaa aca ttg          648
Met Val Glu Asn Leu Phe Tyr Asn Met Val Ala Arg Lys Lys Thr Leu
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cag aac tcc aat gat gac tac ccc aag atc gta gac ttc atc agt cgg          696
Gln Asn Ser Asn Asp Asp Tyr Pro Lys Ile Val Asp Phe Ile Ser Arg
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ttt gca gtc cat cac atc aac gtt acc ttc tct tgc aga aag cat gga          744
Phe Ala Val His His Ile Asn Val Thr Phe Ser Cys Arg Lys His Gly
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gcc aat aga gca gat gtt cat agt gca agt aca tcc tca agg tta gat          792
Ala Asn Arg Ala Asp Val His Ser Ala Ser Thr Ser Ser Arg Leu Asp
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gct atc agg agt gtc tat ggg gct tct gtc gtt cgt gat ctc ata gaa          840
Ala Ile Arg Ser Val Tyr Gly Ala Ser Val Val Arg Asp Leu Ile Glu
225                 230                 235                 240

ata aag gtt tca tat gag gat gct gca gat tca atc ttc aag atg gat          888
Ile Lys Val Ser Tyr Glu Asp Ala Ala Asp Ser Ile Phe Lys Met Asp
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ggt tac atc tca aat gca aat tat gtg gca aag aag att aca atg att          936
Gly Tyr Ile Ser Asn Ala Asn Tyr Val Ala Lys Lys Ile Thr Met Ile
                260                 265                 270

ctt ttc ata aat gat agg ctt gta gac tgt act gct ttg aaa aga gct          984
Leu Phe Ile Asn Asp Arg Leu Val Asp Cys Thr Ala Leu Lys Arg Ala
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att gaa ttt gtg tac tct gca aca ttg cct caa gca tcc aaa cct ttc         1032
Ile Glu Phe Val Tyr Ser Ala Thr Leu Pro Gln Ala Ser Lys Pro Phe
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ata tac atg tcc ata cat ctt cca tca gaa cac gtg gat gtt aat ata         1080
Ile Tyr Met Ser Ile His Leu Pro Ser Glu His Val Asp Val Asn Ile
305                 310                 315                 320

cac cca acc aag aaa gag gtt agc ctt ttg aat caa gag cgt att att         1128
His Pro Thr Lys Lys Glu Val Ser Leu Leu Asn Gln Glu Arg Ile Ile
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acc agg ata ttc caa act cag gca tta aac tta tca ggg att gct caa        1224
Thr Arg Ile Phe Gln Thr Gln Ala Leu Asn Leu Ser Gly Ile Ala Gln
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gct aac cca caa aag gat aag gtt tct gag gcc agt atg ggt tct gga        1272
Ala Asn Pro Gln Lys Asp Lys Val Ser Glu Ala Ser Met Gly Ser Gly
            370             375                 380

aca aaa tct caa aaa att cct gtg agc caa atg gtc aga aca gat cca        1320
Thr Lys Ser Gln Lys Ile Pro Val Ser Gln Met Val Arg Thr Asp Pro
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cgc aat cca tct gga aga ttg cac acc tac tgg cac ggg caa tct tca        1368
Arg Asn Pro Ser Gly Arg Leu His Thr Tyr Trp His Gly Gln Ser Ser
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aat ctt gaa aag aaa ttt gat ctt gta tct gta aga aat gtt gta aga        1416
Asn Leu Glu Lys Lys Phe Asp Leu Val Ser Val Arg Asn Val Val Arg
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tca agg aga aac caa aaa gat gct ggt gat ttg tca agc cgt cat gag        1464
Ser Arg Arg Asn Gln Lys Asp Ala Gly Asp Leu Ser Ser Arg His Glu
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ctc ctt gtg gaa ata gat tct agc ttc cat cct ggc ctt ttg gac att        1512
Leu Leu Val Glu Ile Asp Ser Ser Phe His Pro Gly Leu Leu Asp Ile
            450             455                 460

gtc aag aac tgc aca tat gtt gga ctt gcc gat gaa gcc ttt gct ttg        1560
Val Lys Asn Cys Thr Tyr Val Gly Leu Ala Asp Glu Ala Phe Ala Leu
465             470                 475                 480

ata caa cac aat acc cgc tta tac ctt gta aat gtg gta aat att agt        1608
Ile Gln His Asn Thr Arg Leu Tyr Leu Val Asn Val Val Asn Ile Ser
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aaa gaa ctt atg tac cag caa gct ttg tgc cgt ttt ggg aac ttc aat        1656
Lys Glu Leu Met Tyr Gln Gln Ala Leu Cys Arg Phe Gly Asn Phe Asn
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gct att cag ctc agt gaa cca gct cca ctt cag gag ttg ctg gtg atg        1704
Ala Ile Gln Leu Ser Glu Pro Ala Pro Leu Gln Glu Leu Leu Val Met
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gca ctg aaa gac gat gaa ttg atg agt gat gaa aag gat gat gag aaa        1752
Ala Leu Lys Asp Asp Glu Leu Met Ser Asp Glu Lys Asp Asp Glu Lys
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ctg gag att gca gaa gta aac act gag ata cta aaa gaa aat gct gag        1800
Leu Glu Ile Ala Glu Val Asn Thr Glu Ile Leu Lys Glu Asn Ala Glu
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aca aga ctt cct gtt gta ctg gac cag tac acc cct gat atg gac cgt        1896
Thr Arg Leu Pro Val Val Leu Asp Gln Tyr Thr Pro Asp Met Asp Arg
                580                 585                 590

ctt cca gaa ttt gtg ttg gct tta gga aat gat gtt act tgg gat gac        1944
Leu Pro Glu Phe Val Leu Ala Leu Gly Asn Asp Val Thr Trp Asp Asp
                595                 600                 605

gag aaa gag tgc ttc aga aca gta gct tct gct gta gga aac ttc tat        1992
Glu Lys Glu Cys Phe Arg Thr Val Ala Ser Ala Val Gly Asn Phe Tyr
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gca ctt cat ccc cca atc ctt cca aat cca tct ggg aat ggc att cat        2040
Ala Leu His Pro Pro Ile Leu Pro Asn Pro Ser Gly Asn Gly Ile His
625                 630                 635                 640

tta tac aag aaa aat aga gat tca atg gct gat gaa cat gct gag aat        2088
Leu Tyr Lys Lys Asn Arg Asp Ser Met Ala Asp Glu His Ala Glu Asn
                645                 650                 655

gat cta ata tca gat gaa aat gac gtt gat caa gaa ctt ctt gcg gaa        2136
Asp Leu Ile Ser Asp Glu Asn Asp Val Asp Gln Glu Leu Leu Ala Glu
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gca gaa gca gca tgg gcc caa cgt gag tgg acc att cag cat gtc ttg        2184
Ala Glu Ala Ala Trp Ala Gln Arg Glu Trp Thr Ile Gln His Val Leu
        675                 680                 685

ttt cca tcc atg cga ctt ttc ctc aag ccc ccg aag tca atg gca aca        2232
Phe Pro Ser Met Arg Leu Phe Leu Lys Pro Pro Lys Ser Met Ala Thr
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gat gga acg ttt gtg cag gtt gct tcc ttg gag aaa ctc tac aag att        2280
Asp Gly Thr Phe Val Gln Val Ala Ser Leu Glu Lys Leu Tyr Lys Ile
705                 710                 715                 720

ttt gaa agg tgt tag ctcataagtg agaaaatgaa ggcagagtaa gatcatgatt        2335
Phe Glu Arg Cys  *


catggagtgt ttttgaaaat gtgtataatt tcaccgtatt atgtactttg atagtgtctg        2395
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Gly Leu Lys Leu Ile Gln Val Ser Asp Asp Gly His Gly Ile Arg Phe
65                    70                    75                    80
Glu Asp Leu Ala Ile Leu Cys Glu Arg His Thr Thr Ser Lys Leu Ser
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Ala Tyr Glu Asp Leu Gln Thr Ile Lys Ser Met Gly Phe Arg Gly Glu
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Ala Leu Ala Ser Met Thr Tyr Val Gly His Val Thr Val Thr Thr Ile
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Thr Glu Gly Gln Leu His Gly Tyr Arg Val Ser Tyr Arg Asp Gly Val
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Met Val Glu Asn Leu Phe Tyr Asn Met Val Ala Arg Lys Lys Thr Leu
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Gln Asn Ser Asn Asp Asp Tyr Pro Lys Ile Val Asp Phe Ile Ser Arg
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Phe Ala Val His His Ile Asn Val Thr Phe Ser Cys Arg Lys His Gly
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Ala Asn Arg Ala Asp Val His Ser Ala Ser Thr Ser Ser Arg Leu Asp
            210                   215                   220
Ala Ile Arg Ser Val Tyr Gly Ala Ser Val Val Arg Asp Leu Ile Glu
225                   230                   235                   240
Ile Lys Val Ser Tyr Glu Asp Ala Ala Asp Ser Ile Phe Lys Met Asp
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Gly Tyr Ile Ser Asn Ala Asn Tyr Val Ala Lys Lys Ile Thr Met Ile
                260                   265                   270
Leu Phe Ile Asn Asp Arg Leu Val Asp Cys Thr Ala Leu Lys Arg Ala
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Thr Arg Ile Phe Gln Thr Gln Ala Leu Asn Leu Ser Gly Ile Ala Gln
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Ala Asn Pro Gln Lys Asp Lys Val Ser Glu Ala Ser Met Gly Ser Gly
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Arg Asn Pro Ser Gly Arg Leu His Thr Tyr Trp His Gly Gln Ser Ser
                405                   410                   415
Asn Leu Glu Lys Lys Phe Asp Leu Val Ser Val Arg Asn Val Val Arg
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Ser Arg Arg Asn Gln Lys Asp Ala Gly Asp Leu Ser Ser Arg His Glu
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Leu Leu Val Glu Ile Asp Ser Ser Phe His Pro Gly Leu Leu Asp Ile
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Val Lys Asn Cys Thr Tyr Val Gly Leu Ala Asp Glu Ala Phe Ala Leu
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RTA01/2103533v1

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Ala Ile Gln Leu Ser Glu Pro Ala Pro Leu Gln Glu Leu Leu Val Met
        515             520             525
Ala Leu Lys Asp Asp Glu Leu Met Ser Asp Glu Lys Asp Asp Glu Lys
    530             535             540
Leu Glu Ile Ala Glu Val Asn Thr Glu Ile Leu Lys Glu Asn Ala Glu
545             550             555             560
Met Ile Asn Glu Tyr Phe Ser Ile His Ile Asp Gln Asp Gly Lys Leu
                565             570             575
Thr Arg Leu Pro Val Val Leu Asp Gln Tyr Thr Pro Asp Met Asp Arg
            580             585             590
Leu Pro Glu Phe Val Leu Ala Leu Gly Asn Asp Val Thr Trp Asp Asp
            595             600             605
Glu Lys Glu Cys Phe Arg Thr Val Ala Ser Ala Val Gly Asn Phe Tyr
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Ala Leu His Pro Pro Ile Leu Pro Asn Pro Ser Gly Asn Gly Ile His
625             630             635             640
Leu Tyr Lys Lys Asn Arg Asp Ser Met Ala Asp Glu His Ala Glu Asn
            645             650             655
Asp Leu Ile Ser Asp Glu Asn Asp Val Asp Gln Glu Leu Leu Ala Glu
            660             665             670
Ala Glu Ala Ala Trp Ala Gln Arg Glu Trp Thr Ile Gln His Val Leu
    675             680             685
Phe Pro Ser Met Arg Leu Phe Leu Lys Pro Pro Lys Ser Met Ala Thr
    690             695             700
Asp Gly Thr Phe Val Gln Val Ala Ser Leu Glu Lys Leu Tyr Lys Ile
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Ser Pro Ala Thr Thr Ile Val Pro Arg Glu Pro Pro Lys Ile Gln Arg
                20              25              30

tta gaa gaa tca gta gtc aac cgt atc gca gct ggt gaa gta atc cag      143
Leu Glu Glu Ser Val Val Asn Arg Ile Ala Ala Gly Glu Val Ile Gln
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Asp Ser Ser Ser Ile Ser Val Val Val Lys Asp Gly Gly Leu Lys Leu
     65                  70                  75

att caa gtc tcc gac gac ggt cac ggt att aga cgt gaa gac ttg ccg          287
Ile Gln Val Ser Asp Asp Gly His Gly Ile Arg Arg Glu Asp Leu Pro
 80                  85                  90                  95

ata cta tgc gag aga cat aca aca tcg aag ctg act aag ttt gag gat          335
Ile Leu Cys Glu Arg His Thr Thr Ser Lys Leu Thr Lys Phe Glu Asp
                 100                 105                 110

ttg ttc tct ctg agt tca atg gga ttt aga gga gag gca tta gct agt          383
Leu Phe Ser Leu Ser Ser Met Gly Phe Arg Gly Glu Ala Leu Ala Ser
                 115                 120                 125

atg acc tat gtt gct cat gtt aca gtg act act att act aaa ggc cag          431
Met Thr Tyr Val Ala His Val Thr Val Thr Thr Ile Thr Lys Gly Gln
             130                 135                 140

att cat ggt tat aga gtg tct tat aga gat ggt gtc atg gag cat gaa          479
Ile His Gly Tyr Arg Val Ser Tyr Arg Asp Gly Val Met Glu His Glu
         145                 150                 155

cca aag gcg tgt gct gct gtc aaa gga aca cag ata atg gtg gag aat          527
Pro Lys Ala Cys Ala Ala Val Lys Gly Thr Gln Ile Met Val Glu Asn
160                 165                 170                 175

ttg ttc tac aat atg att gct aga agg aag aca ctt caa aat tct gct          575
Leu Phe Tyr Asn Met Ile Ala Arg Arg Lys Thr Leu Gln Asn Ser Ala
                 180                 185                 190

gat gat tac ggg aaa atc gtg gat ttg ctg agc cgg atg gct att cat          623
Asp Asp Tyr Gly Lys Ile Val Asp Leu Leu Ser Arg Met Ala Ile His
             195                 200                 205

tac aat aat gtc agc ttt tct tgt cga aag cat gga gct gtt aag gct          671
Tyr Asn Asn Val Ser Phe Ser Cys Arg Lys His Gly Ala Val Lys Ala
         210                 215                 220

gat gtt cac tca gtc gtg tca cct tca agg ctt gat tca att agg tct          719
Asp Val His Ser Val Val Ser Pro Ser Arg Leu Asp Ser Ile Arg Ser
         225                 230                 235

gta tat gga gta tca gtt gca aag aac ttg atg aaa gta gaa gtt tcc          767
Val Tyr Gly Val Ser Val Ala Lys Asn Leu Met Lys Val Glu Val Ser
240                 245                 250                 255

tcc tgt gac tcc tct ggt tgt act ttt gat atg gag ggt ttc ata tcc          815
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gat aga ttg gtg gaa tgc tct gcc tta aaa aga gcc att gaa att gtt      911
Asp Arg Leu Val Glu Cys Ser Ala Leu Lys Arg Ala Ile Glu Ile Val
            290                 295                 300

tat gct gca aca ttg cca aaa gca tca aaa cct ttt gtc tac atg tca      959
Tyr Ala Ala Thr Leu Pro Lys Ala Ser Lys Pro Phe Val Tyr Met Ser
            305                 310                 315

atc aat ttg cca cgg gaa cat gtt gat atc aat att cac cca aca aag     1007
Ile Asn Leu Pro Arg Glu His Val Asp Ile Asn Ile His Pro Thr Lys
320                 325                 330                 335

aaa gag gtt agc ctt cta aac cag gaa atc att att gag atg ata cag     1055
Lys Glu Val Ser Leu Leu Asn Gln Glu Ile Ile Ile Glu Met Ile Gln
            340                 345                 350

tca gag gtt gaa gta aaa ctg aga aac gca aat gat act agg acg ttt     1103
Ser Glu Val Glu Val Lys Leu Arg Asn Ala Asn Asp Thr Arg Thr Phe
            355                 360                 365

caa gag cag aaa gtg gaa tac att caa tct acg tta aca tct cag aaa     1151
Gln Glu Gln Lys Val Glu Tyr Ile Gln Ser Thr Leu Thr Ser Gln Lys
            370                 375                 380

agt gat tct cca gtt tct cag aag cct tct gga caa aag aca cag aaa     1199
Ser Asp Ser Pro Val Ser Gln Lys Pro Ser Gly Gln Lys Thr Gln Lys
            385                 390                 395

gtt cct gtg aac aaa atg gtg aga aca gat tca tca gat cca gct gga     1247
Val Pro Val Asn Lys Met Val Arg Thr Asp Ser Ser Asp Pro Ala Gly
400                 405                 410                 415

agg tta cat gcc ttt ttg caa ccc aag cca caa agt ctc cct gac aag     1295
Arg Leu His Ala Phe Leu Gln Pro Lys Pro Gln Ser Leu Pro Asp Lys
                420                 425                 430

gtt tct agt ttg agt gta gta agg tct tct gta agg caa aga aga aac     1343
Val Ser Ser Leu Ser Val Val Arg Ser Ser Val Arg Gln Arg Arg Asn
            435                 440                 445

cca aag gaa act gct gat ctt tct agt gtc cag gaa ctt att gct gga     1391
Pro Lys Glu Thr Ala Asp Leu Ser Ser Val Gln Glu Leu Ile Ala Gly
            450                 455                 460

gtt gac agc tgc tgc cat cca ggt atg ctg gag act gta agg aat tgc     1439
Val Asp Ser Cys Cys His Pro Gly Met Leu Glu Thr Val Arg Asn Cys
            465                 470                 475

aca tat gtt gga atg gca gat gat gtt ttt gct tta gtt cag tat aac     1487
Thr Tyr Val Gly Met Ala Asp Asp Val Phe Ala Leu Val Gln Tyr Asn
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acc cat cta tat cta gca aat gtg gtg aat ctc agc aaa gag cta atg        1535
Thr His Leu Tyr Leu Ala Asn Val Val Asn Leu Ser Lys Glu Leu Met
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tat cag caa act ctt cgt cgt ttt gct cat ttt aac gca ata cag ctt        1583
Tyr Gln Gln Thr Leu Arg Arg Phe Ala His Phe Asn Ala Ile Gln Leu
            515                 520                 525

agc gat cca gcc cct ttg tca gag ttg ata ttg ttg gct ctg aaa gag        1631
Ser Asp Pro Ala Pro Leu Ser Glu Leu Ile Leu Leu Ala Leu Lys Glu
            530                 535                 540

gag gat cta gat cca gga aat gat aca aaa gat gat ctg aaa gaa aga        1679
Glu Asp Leu Asp Pro Gly Asn Asp Thr Lys Asp Asp Leu Lys Glu Arg
        545                 550                 555

att gct gaa atg aat aca gaa ctc ctc aag gaa aaa gca gaa atg tta        1727
Ile Ala Glu Met Asn Thr Glu Leu Leu Lys Glu Lys Ala Glu Met Leu
560                 565                 570                 575

gag gag tat ttc agc gtg cac att gac tcc agt gca aat ttg tca agg        1775
Glu Glu Tyr Phe Ser Val His Ile Asp Ser Ser Ala Asn Leu Ser Arg
                580                 585                 590

ctt cct gtg ata ctc gac cag tat aca cct gac atg gat cgt gtt cct        1823
Leu Pro Val Ile Leu Asp Gln Tyr Thr Pro Asp Met Asp Arg Val Pro
                595                 600                 605

gaa ttt tta cta tgc ttg gga aat gat gtt gag tgg gaa gat gag aag        1871
Glu Phe Leu Leu Cys Leu Gly Asn Asp Val Glu Trp Glu Asp Glu Lys
            610                 615                 620

agt tgc ttt caa gga gtt tct gca gct att ggg aac ttt tac gcc atg        1919
Ser Cys Phe Gln Gly Val Ser Ala Ala Ile Gly Asn Phe Tyr Ala Met
            625                 630                 635

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His Pro Pro Leu Leu Pro Asn Pro Ser Gly Asp Gly Ile Gln Phe Tyr
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                660                 665                 670

gtc gat atg gag gac aat ctt gac caa gat ctt ctg tca gat gct gaa        2063
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aac gca tgg gca caa cgt gaa tgg tca atc caa cac gtg ttg ttt ccg        2111
Asn Ala Trp Ala Gln Arg Glu Trp Ser Ile Gln His Val Leu Phe Pro
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tca atg aga ttg ttc ttg aag cca cca gct tcc atg gct tca aat ggg        2159
Ser Met Arg Leu Phe Leu Lys Pro Pro Ala Ser Met Ala Ser Asn Gly
            705                 710                 715
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720   725   730   735

cga tgc taactgaaac cgctgattgt agaagaactt ttgatatgag tagcttccat   2263
Arg Cys

ttgctctaac tatgtttcta gactttgaat gaaagtggaa ccagtttacg gttaaaccaa   2323
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Pro Val Ser Ala Val Lys Glu Leu Val Glu Asn Ser Leu Asp Ala Asp
        50   55   60
Ser Ser Ser Ile Ser Val Val Val Lys Asp Gly Gly Leu Lys Leu Ile
65   70   75   80
Gln Val Ser Asp Asp Gly His Gly Ile Arg Arg Glu Asp Leu Pro Ile
                85   90   95
Leu Cys Glu Arg His Thr Thr Ser Lys Leu Thr Lys Phe Glu Asp Leu
            100   105   110
Phe Ser Leu Ser Ser Met Gly Phe Arg Gly Glu Ala Leu Ala Ser Met
            115   120   125
Thr Tyr Val Ala His Val Thr Val Thr Thr Ile Thr Lys Gly Gln Ile
            130   135   140
His Gly Tyr Arg Val Ser Tyr Arg Asp Gly Val Met Glu His Glu Pro
145   150   155   160
Lys Ala Cys Ala Ala Val Lys Gly Thr Gln Ile Met Val Glu Asn Leu
            165   170   175
Phe Tyr Asn Met Ile Ala Arg Arg Lys Thr Leu Gln Asn Ser Ala Asp
            180   185   190
Asp Tyr Gly Lys Ile Val Asp Leu Leu Ser Arg Met Ala Ile His Tyr
            195   200   205
Asn Asn Val Ser Phe Ser Cys Arg Lys His Gly Ala Val Lys Ala Asp
            210   215   220
Val His Ser Val Val Ser Pro Ser Arg Leu Asp Ser Ile Arg Ser Val
225   230   235   240
Tyr Gly Val Ser Val Ala Lys Asn Leu Met Lys Val Glu Val Ser Ser
                245   250   255
Cys Asp Ser Ser Gly Cys Thr Phe Asp Met Glu Gly Phe Ile Ser Asn
            260   265   270
Ser Asn Tyr Val Ala Lys Lys Thr Ile Leu Val Leu Phe Ile Asn Asp
            275   280   285
Arg Leu Val Glu Cys Ser Ala Leu Lys Arg Ala Ile Glu Ile Val Tyr
            290   295   300
Ala Ala Thr Leu Pro Lys Ala Ser Lys Pro Phe Val Tyr Met Ser Ile
305   310   315   320

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Asn Leu Pro Arg Glu His Val Asp Ile Asn Ile His Pro Thr Lys Lys
                325                 330             335
Glu Val Ser Leu Leu Asn Gln Glu Ile Ile Ile Glu Met Ile Gln Ser
                340                 345             350
Glu Val Glu Val Lys Leu Arg Asn Ala Asn Asp Thr Arg Thr Phe Gln
                355                 360             365
Glu Gln Lys Val Glu Tyr Ile Gln Ser Thr Leu Thr Ser Gln Lys Ser
                370                 375             380
Asp Ser Pro Val Ser Gln Lys Pro Ser Gly Gln Lys Thr Gln Lys Val
385                 390             395                 400
Pro Val Asn Lys Met Val Arg Thr Asp Ser Ser Asp Pro Ala Gly Arg
                405                 410             415
Leu His Ala Phe Leu Gln Pro Lys Pro Gln Ser Leu Pro Asp Lys Val
                420                 425             430
Ser Ser Leu Ser Val Val Arg Ser Ser Val Arg Gln Arg Arg Asn Pro
                435                 440             445
Lys Glu Thr Ala Asp Leu Ser Ser Val Gln Glu Leu Ile Ala Gly Val
    450                 455             460
Asp Ser Cys Cys His Pro Gly Met Leu Glu Thr Val Arg Asn Cys Thr
465                 470             475                 480
Tyr Val Gly Met Ala Asp Asp Val Phe Ala Leu Val Gln Tyr Asn Thr
                485                 490             495
His Leu Tyr Leu Ala Asn Val Val Asn Leu Ser Lys Glu Leu Met Tyr
                500                 505             510
Gln Gln Thr Leu Arg Arg Phe Ala His Phe Asn Ala Ile Gln Leu Ser
                515                 520             525
Asp Pro Ala Pro Leu Ser Glu Leu Ile Leu Leu Ala Leu Lys Glu Glu
    530                 535             540
Asp Leu Asp Pro Gly Asn Asp Thr Lys Asp Asp Leu Lys Glu Arg Ile
545                 550             555                 560
Ala Glu Met Asn Thr Glu Leu Leu Lys Glu Lys Ala Glu Met Leu Glu
                565                 570             575
Glu Tyr Phe Ser Val His Ile Asp Ser Ser Ala Asn Leu Ser Arg Leu
                580                 585             590
Pro Val Ile Leu Asp Gln Tyr Thr Pro Asp Met Asp Arg Val Pro Glu
                595                 600             605
Phe Leu Leu Cys Leu Gly Asn Asp Val Glu Trp Glu Asp Glu Lys Ser
    610                 615             620
Cys Phe Gln Gly Val Ser Ala Ala Ile Gly Asn Phe Tyr Ala Met His
625                 630             635                 640
Pro Pro Leu Leu Pro Asn Pro Ser Gly Asp Gly Ile Gln Phe Tyr Ser
                645                 650             655
Lys Arg Gly Glu Ser Ser Gln Glu Lys Ser Asp Leu Glu Gly Asn Val
                660                 665             670
Asp Met Glu Asp Asn Leu Asp Gln Asp Leu Leu Ser Asp Ala Glu Asn
                675                 680             685
Ala Trp Ala Gln Arg Glu Trp Ser Ile Gln His Val Leu Phe Pro Ser
    690                 695             700
Met Arg Leu Phe Leu Lys Pro Pro Ala Ser Met Ala Ser Asn Gly Thr
705                 710             715                 720
Phe Val Lys Val Ala Ser Leu Glu Lys Leu Tyr Lys Ile Phe Glu Arg
                725                 730             735
Cys
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